

REMARKS

This is in response to the Final Office Action mailed on June 14, 2005. Pending in the present application are claims 1-32. In the Application, claims 9-20 stand withdrawn from consideration pursuant to 37 C.F.R. § 1.142(b) as being drawn to a nonelected invention. In the Office Action, further restriction was required between the invention of claims 2-5 (Group II) and the invention of dependent claims 21-32 (Group III). Constructive election of the Group II claims was made in the Office Action, and Group III claims 21-32 were withdrawn from consideration. Applicant confirms this election with traverse. Lastly, claims 1-8 were rejected with finality over the prior art. In reliance on the following remarks, Applicant believes that the pending claims are in condition for allowance and respectfully requests reconsideration and notice to that effect. Claims 1-32 are now pending in the present application.

Telephone Conference

Applicant appreciated the opportunity during a August 10, 2005 telephone conference between Dina Khaled and Examiner Tugbang to discuss the distinctions between the present invention and Lin et al., U.S. Patent No. 6,262,869 ("Lin"). In particular, Applicant explained that Lin does not teach or suggest defining a stripe height back edge of a magnetoresistive sensor and subsequently defining a reader width of the magnetoresistive sensor. Proposed changes to claim 1 were also discussed.

Claim 20

With this Amendment, previously withdrawn claim 20 is amended to again correct its dependency. In a Preliminary Amendment mailed on January 15, 2002, claim 20 was amended to correct its dependency from claim 17 to claim 19. In the presentation of claims in the Amendment mailed on March 24, 2005, Applicant inadvertently reverted claim 20 to its original dependency from claim 17. Applicant now corrects claim 20 to depend from claim 19.

Restriction Requirements

Applicant continues to traverse the requirement for restriction between the inventions of claims 1-8 and the invention of claims 9-18 for the reasons presented in the Amendments mailed October

6, 2004 and March 24, 2005. For these same reasons, Applicant further traverses the new requirement for restriction between the invention of claims 2-5 (Group II) and the invention of claims 21-32 (Group III).

At paragraph 6 of the Office Action, it is asserted that the "[i]nventions of Groups II and III are related as subcombinations disclosed as usable together in a single combination." It is further asserted that "the invention of Group III has separate utility such as removing the first and second photoresist layers, not required in Group II" and that "[g]roup II has separate utility in that the first and second photoresist layers are layers that are formed with the final product of the magnetoresistive reader."

In response, Applicant initially points out that the invention of Group II does not require that the first and second photoresist layers be formed with the final product of the magnetoresistive reader. Claims 2-5 (and independent claim 1 from which these claims depend) each include the open-ended transitional phrase "comprising", which is a term of art used in claim language to mean that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim. M.P.E.P. § 2111.03. The fact that these claims do not explicitly call for the removal of the first and second photoresist layers does not lead to the conclusion that the first and second photoresist layers must remain in the final product.

Applicant further disputes that the inventions of Groups II and III have separate utility. For example, both claim 2 of Group II and claim 21 of Group III recite steps for implementing the step of "defining the stripe height back edge of the magnetoresistive sensor" of independent claim 1. Nonetheless, claim 1 is generic to both Group II and Group III, such that the claims of both Groups II and III are allowable with claim 1.

#### Prior Art Rejections

In the Office Action, the rejection of claims 1-8 over the prior art was maintained and repeated. Specifically, claims 1-4 were rejected under 35 U.S.C. 102(e) as being anticipated by Lin; claim 5 was rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of Hiner et al., U.S. Patent No. 6,032,353 ("Hiner"); and claims 6-8 were rejected under 35 U.S.C. 103(a) as being unpatentable

over Lin in view of Gill et al., U.S. Patent No. 6,055,136 ("Gill"). Applicant disputes that the present invention is taught or suggested by the prior art, and respectfully requests reconsideration.

Claim 1 is directed toward a method for forming a magnetoresistive (MR) reader by **defining a stripe height back edge of a MR sensor** of the MR reader, and subsequently defining a reader width of the MR sensor. As explained in the present application, a sensor of an MR reader is formed by defining four critical edges: a front and back edge defining a stripe height of the sensor and side edges defining a width of the sensor (a reader width). Conventionally, the reader width is defined first, followed by definition of the stripe height back edge and then the stripe height front edge. See page 4, lines 17-21. In accord with the present invention, first, a stripe height back edge of the sensor is defined, and second, a reader width of the sensor is defined. See page 3, lines 19-20. Looking to FIG. 8 of the present application, final stripe height 36 of MR sensor 32 is defined as the distance stripe height back edge 30 and stripe height front edge 34. None of the cited prior art teaches or suggests this method of first defining the stripe height back edge and subsequently defining the reader width.

Lin is directed toward a spin valve sensor having a keeper layer encapsulated in oxide layers. Lin teaches that the spin valve sensor is formed by **defining a track width** of the spin valve sensor (see FIGS. 19H-I and Col. 12, lines 37-44), **and subsequently defining a stripe height**. (Col. 12, lines 55-60). The Office Action suggests that FIG. 19G teaches the step of defining a stripe height back edge of a MR sensor. See Page 4, Paragraph 8 ("...defining a stripe height back edge (back edge of the top surface of 312 in FIG. 19G)...."). This argument, however, relies upon an improper construction of the phrase "**stripe height back edge of a magnetoresistive sensor**" – a construction which improperly strikes most of the terms, namely "**stripe height...of a magnetoresistive sensor**", from the phrase.

FIG. 19A-19L of Lin show various steps in the construction of a spin valve sensor. (Col. 11, lines 60-62). This construction occurs over an entire wafer where rows and columns of magnetic head assemblies are being constructed. (Col. 11, lines 62-66). In FIG. 19G spin valve sensor layers 310, 304, 302, 306, 308 and 312 are sputter-deposited over the entire wafer. (Col. 12, lines 23-25). Thus, the

back edge of the top surface of 312 in FIG. 19G relied upon in the Office Action as the "stripe height back edge of a MR sensor" is only the back edge of the wafer upon which the spin valve sensor is being formed. As such, this back edge is not a stripe height back edge of an MR sensor. As Lin teaches, the spin valve sensor's stripe height back edge is defined later, after the track width is defined, by patterning and ion milling, which directly teaches away from the present invention as claimed. (See Col. 12, lines 55-60). Thus, Lin cannot anticipate the invention of claims 1-8 and 21-32 as it does not teach or suggest the definition of a stripe height back edge of a MR sensor prior to the definition of a reader width of the MR sensor.

Even if it were assumed for the sake of argument only that FIGS. 19A-19L of Lin show various steps in the construction of a single spin valve sensor, the figures still do not teach or suggest **defining a stripe height back edge of a MR sensor and subsequently defining a reader width of the MR sensor**. The Office Action calls attention to FIG. 19G as illustrating the step of defining a stripe height back edge; but FIG. 19G depicts only that "spin valve sensor layers 310, 304, 302, 306, 308 and 312 are sputter deposited". See column 12, lines 23-27. Contrary to the assertions in the Office Action, the back edge of these layers is not the **stripe height back edge of the MR sensor** because it does not serve to define the back edge of the final stripe height of the MR sensor. Rather, it is only a back edge of those layers – the stripe height back edge is not defined until later, after the reader width has been defined. See column 12, lines 23-60. To urge that this back edge is a stripe height back edge of a magnetoresistive sensor reads the words "stripe height...of a magnetoresistive sensor" out of the phrase "stripe height back edge of a magnetoresistive sensor". This is improper.

This deficiency of Lin as an anticipatory reference is not overcome by either Hiner or Gill. Hiner is directed toward a write head having a low stack height and self-aligned pole tips, while Gill is directed toward a spin valve sensor having antiparallel magnetization of pinned layers. Neither of these references provides any teaching or suggestion for defining a stripe height back edge of a MR sensor prior to defining a reader width of the MR sensor. Because none of the prior art of record teaches or suggests

the claimed invention, the present application containing claims 1-8 and 21-32 (dependent claims 2-8 and 21-32 each depend from claim 1) is allowable.

Claim 5 was rejected as being unpatentable over Lin in view of Hiner. Applicant respectfully traverses this rejection. Hiner was cited at paragraph 12 of the Office Action as suggesting "that lapping the ABS provides a smooth surface during operation of the magnetoresistive head." Regardless of the accuracy of this statement, the combination of Lin and Hiner fail to teach, either individual or jointly, the claimed method of first defining the stripe height back edge and subsequently defining the reader width. Accordingly, Applicant respectfully requests reconsideration and withdrawal of this rejection.

Claims 6-8 were rejected as being unpatentable over Lin in view of Gill. Applicant respectfully traverses this rejection. Gill was cited at paragraph 13 of the Office Action as showing "that it is known to form a gap layer 53 by depositing and form a top shield layer 55 by depositing, all of which is an alternative means to pattern the gap and shield layers." (citations omitted). Regardless of the accuracy of this statement, the combination of Lin and Gill fail to teach, either individual or jointly, the claimed method of first defining the stripe height back edge and subsequently defining the reader width. Accordingly, Applicant respectfully requests reconsideration and withdrawal of this rejection.

Conclusion

In view of the above comments, it is believed that the present application is in condition for allowance. Reconsideration and notice to that effect is respectfully requested. The Examiner is invited to contact the undersigned at the telephone number listed below if such a call would in any way facilitate allowance of the application.

Respectfully submitted,

KINNEY & LANGE, P.A.

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By: Dina M. Khaled

Dina M. Khaled, Reg. No. 52,761  
THE KINNEY & LANGE BUILDING  
312 South Third Street  
Minneapolis, MN 55415-1002  
Telephone: (612) 339-1863  
Fax: (612) 339-6580

DMK:bs